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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/530,568	04/07/2005	Eric Adriaenssens	123439	8995
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OLIFF & BERRIDGE, PLC P.O. BOX 19928 ALEXANDRIA, VA 22320				
			EXAMINER HALVORSON, MARK	
			ART UNIT 1642	PAPER NUMBER
			MAIL DATE 07/23/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/530,568

Applicant(s)

ADRIAENSSENS ET AL.

Examiner

Mark Halvorson

Art Unit

1642

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 03 May 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 23-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 23-31 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claims 23-31 are pending and are under examination.

NEW REJECTIONS: Based on the Amendment

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 30 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is not clear how claim 30, drawn to a method comprising culturing circulating tumor cells under conditions such that they secrete NGF, can be dependent upon claim 28, drawn to a method comprising culturing tumor cells under conditions that block NGF inside the cells.

Claim Rejections - 35 USC § 102

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 23, and 31 are rejected under 35 U.S.C. 102(b) as being anticipated by Sakamoto et al (Oncol Rep, Sep-Oct 2001, 8:973-980).

The claims are drawn to a method for the diagnosis of breast cancer consisting of determining the presence of nerve growth factor (NGF) in a biological fluid obtained from a patient suspected of suffering from breast cancer.

Sakamoto et al disclose a method for diagnosing breast cancer by using immunohistochemistry on biopsy specimens to detect NGF (page 975, 2nd column, 3rd paragraph).

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Applicants argue that Sakamoto et al disclose a method for diagnosing breast cancer by using immunohistochemistry on tissues obtained from invasive ductal breast carcinoma to detect NGF while claim 23 requires that the "biological sample obtained from a patient suspected of suffering from breast cancer... comprises a biological fluid." Applicants argue that Sakamoto does not expressly or inherently describe the use of a biological fluid for the diagnosis of breast cancer, as required by claim 23.

Applicant's arguments have been fully considered but they are not persuasive. A breast tissue sample used in immunohistochemistry would necessarily include breast tissue fluid. Furthermore, Sakamoto et al disclose that the NGF-TrkA paracrine loop is implicated in the proliferation of breast cancer. (page 977, 2nd column). Thus, Sakamoto et al disclose that NGF would be secreted from cells into the surrounded fluid.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 24- 27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al, further in view of WO 97/38313 (published Oct 1997) and Varilek et al (Am J Physiol. 1995, 269:G445-G452).

The claims are drawn to a method for the diagnosis of breast cancer consisting of determining the presence of NGF in a biological sample derived from a patient suspected of suffering from breast cancer, wherein the biological sample consist of biological fluid comprising circulating tumor cells, wherein circulating tumor cells secreting NGF are isolated and cultured under conditions such that they secrete NGF, wherein the detection of NGF I is demonstrated by culturing NGF-sensitive cell in the presence of the biological sample.

Sakamoto et al has been described supra.

Sakamoto et al does not teach enriching cancer cells from bodily fluids, culturing the cells such that they secrete NGF nor demonstrating NGF using NGF-sensitive cells.

WO 97/38313 teaches how to enrich cancer cells from various bodily fluids (page 3, lines 1-17, page 6, line 3 to page 18 line 28).

Varilek et al describe the secretion of NGF from an adenoma cell line. (page G447 1st column 1st paragraph) Varilek et al further describes the detection of secreted NGF by culturing a biological sample in the presence of the NGF-sensitive cell, PC-12. (page G446, 2nd paragraph).

One of ordinary skill in the art would have been motivated to apply WO 97/38313 method of enriching cancer cells from bodily fluids to Sakamoto et al's method for diagnosing breast cancer by detecting NGF because enriching for and detecting cancer cells in the peripheral blood would be of great diagnostic benefit. (WO 97/38313, page 1 lines 14-17). One of ordinary skill in the art would have been motivated to apply Varilek et al method of detecting NGF from cell supernatants to WO 97/38313 and Sakamoto et al's method of enriching breast cancer cells from bodily fluids because of the sensitivity of detecting NGF from cell supernatants. (Varilek et al, Abstract)

Thus it would have been prima facie obvious to one skilled in the art to have combined WO 97/38313 and Sakamoto et al's method of enriching breast cancer cells from bodily fluids with Varilek et al method of detecting NGF from cell supernatants to detect NGF in cell supernatants from isolated breast cancer cells for diagnosing breast cancer.

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Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakamoto et al in view of WO 97/38313 in further view of Picker et al. (Blood, 1995, 86:1408-1419)

Claim 28 is drawn to a method for the diagnosis of breast cancer consisting of determining the presence of NGF in a biological sample derived from a patient suspected of suffering from breast cancer, characterized in that the circulating tumor cells are also cultured under conditions that block the NGF inside the cell.

Sakamoto et al has been described supra.

WO 97/38313 has been described supra.

Neither Sakamoto et al nor WO 97/38313 disclose culturing tumor cells under conditions that block the NGF, a cytokine, inside the cell.

Pickler et al disclose a method for determining the presence of cytokines using pharmacologic inhibitor of secretion, Brefeldin A that blocked the secretion of cytokines from cells.

One of ordinary skill in the art would have been motivated to apply Pickler et al's method for determining the presence of cytokines to Sakamoto et al and WO 97/38313's method of determining the presence of NGF from circulating tumor cells because Pickler et al state that this procedure has considerably enhanced the sensitivity and reproduction of the cytokine detection. Thus it would have been prima facie obvious to one skilled in the art to have combined Sakamoto et al and WO 97/38313's method of determining the presence of NGF from circulating tumor cells with Pickler et al's method for determining the presence of cytokines to detect breast cancer cells expressing NGF for diagnosing breast cancer.

Summary

Claims 23-31 stand rejected

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

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A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Halvorson, PhD whose telephone number is (571) 272-6539. The examiner can normally be reached on Monday through Friday from 8:30am to 5 pm. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley, can be reached at (571) 272-0898. The fax phone number for this Art Unit is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mark Halvorson
Patent Examiner
571-272-6539

/Misook Yu/
Primary Examiner, Art Unit 1642